DOCUMENT RESUME

ED 186 131 PS 011 422

AUTHOR Lundsteen, Sara W.
TITLE Measurement for Creative Problem Solving in Kindergarten Children.
PUB DATE 8 Apr 80
NOTE 36p.; Best available copy. Paper presented at the Meeting of the National Council on Measurement in Education (Boston, MA, April 8, 1980).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Check Lists; Cognitive Processes; *Cognitive Style; *Creativity; Cross Cultural Studies; Early Childhood Education; Interviews; *Kindergarten Children; Longitudinal Studies; *Measurement Techniques; *Measures (Individuals); Observation; *Problem Solving

ABSTRACT

This paper briefly describes various methods used in a longitudinal and cross cultural study of kindergarten children's creative problem solving ability. The document contains a figure indicating relationships between four learning styles and child variables, child and parent behavior, and intervention techniques. A problem solving observational scale, a teacher behavior checklist, a parent interview form, and a summary of behavioral characteristics associated with each of the four learning styles are provided. (RH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED186131

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

MEASUREMENT FOR CREATIVE PROBLEM SOLVING IN KINDERGARTEN CHILDREN

SESSION 8B EARLY CHILDHOOD (P) Liberty D 12:25-1:55

BEST COPY AVAILABLE

Sara W. Lundsteen
North Texas State University

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Sara W. Lundsteen
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

PS011422

Paper presented at the National Council on Measurement in Education, April 8, 1980, Boston, MA

MEASUREMNT FOR CREATIVE PROBLEM SOLVING IN KINDERGARTEN CHILDREN

SOCIAL, COGNITIVE, AND AESTHETIC

ABSTRACT

The proposed paper deals with measurement for a longitudinal and cross-cultural study assessing kindergarten children's creative problem solving ultimately in the following areas: social, cognitive, and aesthetic. The measures to be explained in this paper include: (1) Problem Solving Observation Scale (Lower to Higher Behaviors of Young Childrern; (2) High, Medium and Low Styles of Solving (a series of tasks using puppets); (3) Check List of Teacher Behaviors Regarding the Guidance of Young Children's Problem Solving, and (4) Parent Interview Schedule. These measurement instruments are complementary to intensive ethnographic observations of children's development and subsequent interventions in a naturalistic setting.

MEASUREMENT FOR CREATIVE PROBLEM SOLVING IN KINDERGARTEN CHILDREN

Objectives of Inquiry

The overall objective of this multi-phased investigation is to describe and sequence the nature and circumstance of young children's creative problem solving.* More specifically, the study is designed to: (1) discover what in fact it is that young children do to find and solve problems creatively; (2) develop and insert some intervening strategies and tasks to amplify and confirm what the investigator believes she has observed; (3) draw implications for assisting adults and; (4) make cross-cultural comparisons with information already collected in Swedish classrooms.

*See p. 1a

The proposed paper deals with measurement for this study which at present includes: (1) Problem Solving Observation Scale (Lower to Higher Behaviors of Young Children); (2) High, Medium, and Low Styles of Solving (a series of tasks using puppets); (3) Check List of Teacher Behaviors Regarding the Guidance of Young Children's Problem Solving, and (4) Parent Interview Schedule. These measurement instruments are complementary to intensive ethnographic observations of children's development and subsequent interventions in naturalistic settings.

The significance of the work reflected in this paper grows out of the fact that we need to know more about young children's natural development in the area of creative problem solving--a divergent process that can economically and meaningfully integrate school learnings and can highly motivate the learner. Having documented our understandings of young children's problem solving, we can better

* Informally stated, a definition of creative problem solving includes there being no one right answer to the problem and there being unknowns, both as to the nature of the problem and as to its solution(s). Problems are defined as challenges (not necessarily negative stimuli) and may include a variety of contexts, such as artistic (here's a lump of clay--what's to be done with it?), social (two of my friends are playing--how can I get myself included in their game?) and cognitive (here's a bunch of blocks--how can I make them stack up taller than I did yesterday?).

fashion environments (including both school and home) and can intervene, if need be, to promote development. Furthermore, when we are able to compare and contrast what goes on in one country or culture with another, we add richness to our store of knowledge. We can promote an interchange permitting us to learn from each other and share in mutual humanitarian concerns in this International Year of the Child,and in subsequent years. These objectives are relevant to NCME's "Outreach Committee."

Instruments Used

The most powerful measure in this study is intensive observation, conducted daily for the first three weeks until ten subjects were selected to match certain learning/solving styles. A case study file including these and subsequently weekly observations was established for each subject. Moreover, the following are a sampling from the observations and a multiplicity of assessment avenues. These measures will be developed further as they are used, tested, and refined during the various phases of the entire study.

The first sample is from the Problem Solving Observation Scale (Lower to Higher Behaviors of Young Children). Included are a sample coded video tape script collected in Sweden and the first two items from sixteen-item Problem Solving Observation Scale. The next sample is the first page of the check list of of Teacher behaviors (23 approx. aspects)(see sample script), and the next page is a sample from the Parent Interview Schedule. Perhaps the most interesting measure is the series of puppet tasks to use with individual children called High, Medium, and Low Styles of Solving.

This social problem-solving task for the individual kindergarten child grows in large part out of the theoretical ideas of Rosenberg. We structure the puppet dialogue to reflect four problem-solving/learning styles (three rather negative, and one highly positive) in order to describe levels of solving behaviors--low, medium, and high. The styles (lowest to highest) are: (1) "rigid Inhibited," (2) "Undisciplined," (3) "Acceptance Anxious," and (4) "Creative." The first is in the "low" category, and the second and third in a medium category, and the fourth in a high category. The task moves from : (1) inviting the child's open response to the problem presented by the puppets for solving; (2) to an elicited response to dialogue (representing each of the four styles); (3) to a judging of all four styles; (4) to another chance for the child's autonomous response, to reflect upon "poor" and "good" solving. The child's memory is sustained not only by the puppets, but also by the use of cartoon cue cards that reflect the action in the four bits of dialogue.

Besides the Parent Interview Scale designed to collect information on the child's social problem solving at home, we are currently considering constructing four imaginary happenings in various solving styles for adults. On the basis of parent observation we intend to pick a case and ask the parents advice and response. This problem-solving task for parents is intended to add further corroboration to the results of the inverview. In a subsequent parent interview we involve the parent and child working together on a problem-solving task.

Methods

The predominant approach is naturalistic. Data already gathered

from phase one (in Sweden) is compared with results from the summer and fall in America. Observation yields information on 26 research questions dealing with behaviors of children, teachers, and parents in relation to the children's problem solving. Intervention techniques, scales, questionnaires, problem-solving tasks with puppets, and continuing observation furnish corroboration.

Educational Importance of the Study

Several indications of the significance of the study are found in the section on objectives of inquiry. In addition, the work is designed to:

- Promote children's autonomy and self-esteem, rather than their rigidity, or developmentally inappropriate impulsivity. (Such anti-social behaviors are ultimately revisited in community unrest and deterioration as the collection of miseducated individuals grows.)
- Operate from a theoretical position emphasizing the developmental construction of generalizable process and strategy, rather than the obsolescence-producing approach of "funneling" in bits of advice or content.
- Start action when individuals are young, rather than waiting until it is too late.
- Observe young children as problem solvers in natural settings, noting developmental strengths and the productive behaviors they can engage in, when given a chance. (Children's deficits have been highlighted all out of proportion. The abilities of young children have been underestimated.)
- Ultimately shed light on the interaction of social, cognitive, and aesthetic problem solving in young children.
- Produce forms of measurement designed to tap the developmental sequence and dimensions of young children's problem solving.

AUTHENTICITY OF THE PROCEDURES

Classic criteria applied to research procedures are, of course, validity, reliability, and objectivity. In the case of ethnographic investigation (a large portion of the present research procedures), these concepts need some reinterpretation. Guba (1978) suggests some new terms to clarify meanings: intrinsic adequacy (in place of internal validity); extrinsic adequacy (in place of external validity); replicability (in place of reliability); and impartiality (in place of objectivity). To speak to these terms, the investigators will use the following procedures.

(1) Intrinsic adequacy (internal validity)

The investigators will be spending extended periods of time in the school environment (and, if funded--the home) of each child in the study in order to overcome distortions resulting from the effect of the researchers' presence. Children will have had sufficient TV recording exposure to take it in stride.

When appropriate, the researcher takes the role of a non-participant observer, limiting interaction with the children and teacher and concentrating on reporting observations.

The researchers intend to carefully record qualitative observations and have them transcribed within 24 hours of each collection.

(2) Impartiality (Objectivity)

The methods of a trained naturalistic inquirer are as valid a source

of objective data as the methods of an investigator using a quantitative approach (Guba, 1978). The issue is the confirmability of the information once it is obtained.

One method of checking upon impartiality and validity is referred to as corroboration. In the present study the researchers continually combine multiple data sources (e.g., observational data, interviews and tasks, various observers' impressions including the teacher) to determine convergence. Magoon (1977) refers to anthropological ethnographic approaches where the participants corroborated accounts. Thus we intend to use the teacher as a research collaborator.

Another factor contributing to the authenticity is the intent to replicate the study of young children among various cultures. See the Objectives (or "why") section. 1.a.

Before leaving the aspect of impartiality (objectivity) a word about the conceptual framework of the ethnographic method is in order. Observations in ethnographic investigations influence subsequent observations going from a discovery mode to a verification mode, repeatedly alternating in a wave-like rhythm (Guba, 1978). The process in the present investigation might be depicted in the following way.

DEPICTION OF THE PROCESS OF OBSERVATIONAL DATA COLLECTION IN THE PRESENT STUDY

Observations →	Efforts to discover patterns of behavior →	Formation of propositions to assimilate and to account for behavior ↔	Further verification through use of scales, tasks, interviews, corroboration of multiple observers reviewing video tapes ↔	Reorientation to further discovery

SUMMARY, CONCLUSIONS, IMPLICATIONS, AND OTHER CONSIDERATIONS

I Have presented what at this point is largely a descriptive case study aimed at attempts to measure young children's creative problem solving. We have a small sample in this pilot work with young children. But it is work that has grown out of large scale research with older children.

When preparing a presentation for NCME participants are advised to take note of the reviewer's comments. One of my reviewers said, "I am not familiar with the instruments." Actually no one is, except a handfull of people in Sweden, my research assistant, the participants at Gooch Early Childhood Center, one evaluation consultant, and graduate studetns at NTSU trying the measures out themselves in classrooms, and, now, you. The reviewer goes on to say, "I wonder if the instruments have established technical quality." Not yet. And the reviewer says, "Perhaps this research should wait another year until the instruments are further refined, criterion related validity is established, a larger sample is obtained, and more statistical analyses have been conducted." I would agree, but for a few points. (1) The paper was accepted anyway. (2) Now is an ideal time for feedback that could enhance what happens next year. (3) NCME's Outreach Committee is looking for work such as this report entails, now.

The other reviewer furnishing comment said, "I'm uncertain how many viewers rate the videotapes, but I think it's more than one." Yes, there are two. I am currently training a third. The reviewer goes on to ask, "Did you estimate inter-rater reliability?" Yes, and we are apparently high for this sort of domain. Generally for the shortened and revised 12-point Problem Solving Observation Scale, we find lack of agreement on only 2 or 3 points as we examine the 27 Swedish kindergarten children's dialogue. Usually the disagreement takes the form of omissions as one of us sees something the other overlooked.

Since (for this American study) we are not yet at the point of having a large sample, the running of correlations would be premature. We are some distance from being able to give this scale to any one (e.g., to a teacher) with a specified amount of training and say that this person would get reliable results from using the scale.

The second reviewer went on to say,"Some questions in the Parent Interview are threatening, and as such I would have no confidence in the information derived from them. Carefully considering this comment, we went back to the drawing board. You see a somewhat revised interview schedule. But still we are of the opinion that the establishment of considerable rapport is just going to be necessary for any future administration. We have worked to get the confidence of the parent board, the principal, and the teacher. Those working in the field of early childhood who need to know alot about the child simply need to cope with this confidence variable and build in the necessary time.

To review, my problem has been to began assessment in the domain of early childhood creative problem solving where the situation is open-ended and the operations are in large part autonomous. Teachers and parents are coming to see that while children may be adept in handling small academic skills that suit an acceptance anxious style of learning and solving, that they are largely ineffective as creative, autonomous problem solvers that our type of society must have. We have relatively recently moved our development of problem solving measurement to an incorporation of a theoretical framework from Rosenberg with learning solving styles of Rigid Inhibited, Undisciplined, Acceptance Anxious, and Creative categories. With the attributes of each firmly in mind (and with all due caution) our informal observation reports and our measures continue

to strongly imply face valadity for such constructs and their observation.

What is the match among our measurements and the constructs of this Rosenberg framework of styles and operations in productive problem solving? We are still working on these matches, but at present the matches look like the following for the variables mesured.

1) Problem Solving Observation Scale (for child). Some matches we have seen in operation re the Child's Problem Solving Observation Scale (revised and shortened 1-80) are indicated in ink in the left column. A lack of showing up on this simplified scale is typical of the Rigid Inhibited style, with one exception (#4.1).

2) Check List of Teacher Behavior. This measure is designed to tap teacher behavior that promotes children's creative style during small group discussion (and comes from my earlier work with older children).

3) Parent Interview. Items 2, 5, 8, 15, 19, & 20 of the Parent Interview may yield the most information on the Creative style, that is the parenting behavior that may be antecedent to and go along with this child style. The other types of parent behavior indicated in the chart, Figure 1, we might be able to infer as we replay the tape of the interview. But we are really not trying to ferret out these less desirable parenting behaviors. We are more interested in the whether, when and how of parent behavior that might go along with a child's creative style. But we realize that we need to understand the other less desirable styles, too, as they block creative behavior.

4) The sorting task taps the variable of abstract thinking mentioned in the Rosenberg framework (Figure 1). This variable is necessary but not sufficient to a creative style. High concreteness of response to classification tasks is typical of the Rigid Inhibited style.

5) Kindergarten Social Problem Solving Task for Distinguishing High, Medium, and Low Styles (Burr & Meese

puppets) This measurement is our most direct attempt to tap the Rosenberg styles while interacting with a child. But we have found that just the dialogue we composed to reflect the style and the elicitation of the child's response to it is not sufficient. We find that not until we engage the child in giving reasons regarding the verbalization (that reflects the style) in the puppet problem do we tap the child's style and receive confirmation of all our other types of observations.

6) The "Who In the Class...?" Questionnaire. This measure is simply formulaced from descriptive statements in Rosenberg's book. We turned the statements into questions and submitted them to the teacher (in small amounts). The teacher looked down her class register, commented, and we checked the children she mentioned off on a form. The match to Rosenberg ideas is consequently direct. Most of the time the teacher fully grasped the ideas though she had had no training or familiarity with Rosenberg's work at that time. Her observation corroborated our own to a great extent.

SO WHAT

As we look to the future we would like to see and do the following.

1) We would like to see simplified forms of the measurement finding their into school district evaluation offices, into early childhood classrooms (along with William Barker's Preschool Behavior Rating Scales also presented at this session).

2) We intend for future cross-cultural comparisons to sharpen our ideas and yield more universally valid measurement.

3) We intend to work our ideas and findings into curriculum, treatments, and interventions designed to promote creative problem solving. (See Figure 1, last column

and Figure 2, page 2, tasks or activities.

As the first reviewer said, "The objectives are formidable." But we do not try to do everything at once. We do have an idea of where we'd like to go for the next five to ten years. We deal seriously with attempting to measure and assist young children's creative problem solving. We would welcome your feedback, suggestions, and criticism both now and in the future.

FIGURE 1

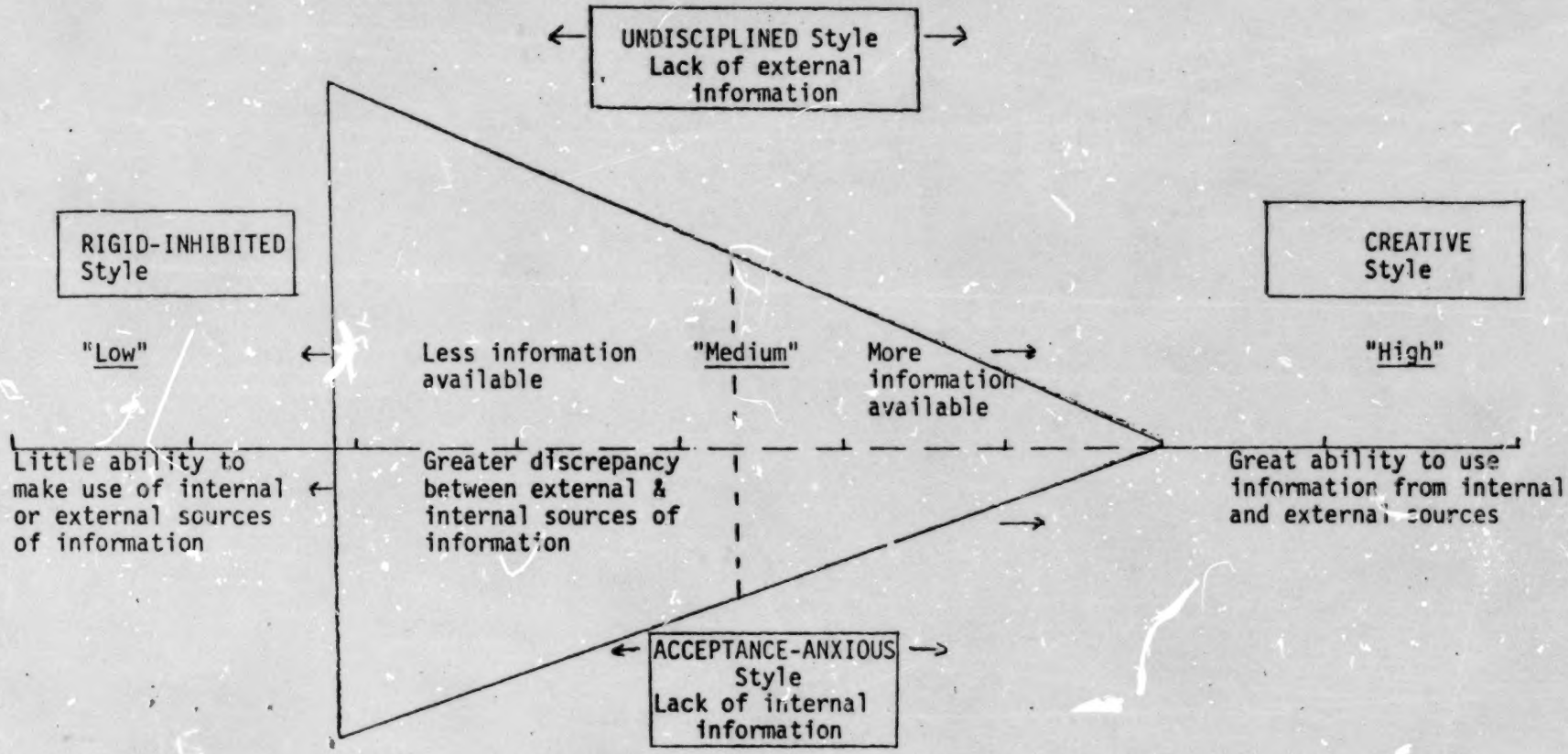
DELINEATION OF FOUR LEARNING STYLES INCLUDING CHILD VARIABLES, CHILD AND PARENT BEHAVIOR AND SOME SUGGESTED CHILD TREATMENTS

LEARNING STYLE	LEVEL OF SYMBOLIZATION	LOCUS OF INFORMATION	TYPE OF PARENT	CHILD'S BEHAVIOR	SUGGESTED CHILD TREATMENT TECHNIQUES
RIGID-INHIBITED	Concrete	Very little (from trusting self) internal or external (little from trusting others)	Authoritarian (constrictive and controlling)	Rigidly follows rules, cannot get job done unless helped; submissive to authority	Encourage ability to function independently. 1. Give concrete explanations, but develop ability to generalize gradually. 2. Provide structure, but encourage child to develop own alternatives (structure). 3. Explain why & encourage child's ability to understand reasons. 4. Use simplification techniques.
UNDISCIPLINED	Functional and moderately abstract	More internal than external	Inconsistent (total direction or none at all)	Disrespectful or negativistic with authorities; breaks rules says, "I won't"; attempts to manipulate; aggressive	Encourage child to control behavior within socially-accepted limits. 1. Set limits; use logical & natural consequences. 2. Maintain a personal relationship, without rejection. 3. Provide feedback on child's behavior & use peer group to provide feedback. 4. Provide opportunities for independent, creative projects of child's choice.
ACCEPTANCE-ANXIOUS	Moderately abstract (anxiety interferes with functioning) Verbalizes conventional concepts	More external than internal	Child-centered (main goal is child's happiness at price of pleasing the parent)	Looks for constant reinforcement; tries hard, meticulous; does something because you want him/her to	Encourage child to set his/her own goals, plan procedures & evaluate results. Achieve emotional independence. 1. Give child support & acceptance. 2. Remove external sources of evaluation; child evaluates self. 3. Provide feedback in an unemotional & impersonal manner--reflecting on achievement, not on person. (Child sees value of self.) 4. Give some leadership roles.
CREATIVE	Abstract	Both internal and external	Creative problem-centered (structure, warmth, respect, fostering independence)	Works independently; uses adults as resources; learns from mistakes; thinks for self; sensitive to others enjoys learning	Encourage child to continue in problem-solving process. 1. Provide maximum opportunity for creativity, independence, divergent thought & use of intuition. 2. Be ready to accept uniqueness, unusual ideas & new solutions.

Lundsteen (Procedures)

Figure 2

DELINEATION OF RELATIVE POSITION AND DIRECTIONAL MOVEMENT OF LOW, MEDIUM, AND HIGH PROBLEM-SOLVING POTENTIAL FOR FOUR LEARNING STYLES


UNDISCIPLINED Style
Lack of external information
RIGID-INHIBITED Style
CREATIVE Style
"Low"
Less information available
"Medium"
More information available
"High"
Little ability to make use of internal or external sources of information
Greater discrepancy between external & internal sources of information
Great ability to use information from internal and external sources
ACCEPTANCE-ANXIOUS Style
Lack of internal information

→ =Possible movement toward extremes of highs and lows, depending on balance of degree of information inputs. (Based on ideas from Rosenberg, 1968)

Rosenberg, M. B. Diagnostic teaching. Seattle: Special Child Publications, 1968.

Lundsteen (overview)

Fig. 14

CHART

MEASUREMENT BESIDES INTENSIVE OBSERVATION

(What Measure, Given to Whom, by Whom, and When)

MEASURES	N	Admin.: Indiv. or Small Grp.	N of E. Involved	How often Admin.	When or Over What Period (Hopefully!)	Comments
I. FOR BASELINE INFO.						
1. Conservation tasks (Piagetian)	22	Indiv.	1 Experimenter	1 (poss. 2)	Sept.-Oct. Apr.-May	
2. Paper circles (art collage)	22	Sm. Grp.	1	1	Sept.-Oct.	
3. Dictated story	22 10	Indiv.	1	3	Sept.-Oct. Jan., Apr.	For selected subjects, compare beginning, middle, and end
4. Sorting task	22	Indiv.	2 (team)	1	Sept.-Oct.	Used for determining verbal use of of abstract, functional, and concrete language & thought, to check approach style
5. The "Burr & Meese" puppet presentation videotaped	10	Indiv.	2	2	Sept.-Oct.& Apr.-May	
6. DISD Reading & Math Readiness Test	22	Sm. Grp.	Teacher	1	Sept.-Oct.	Relate these scores to other info. gathered.
II. FOR COLLECTING DATA ON SUBJECTS & FOR COMPARISON						
1. Video taping of discussion, puppet script #1, Elwood	22	Sm. Grp.	Teacher, 2 Exper.	3	Dec., Feb. & Apr.	The ten subjects will be split into two group, 5 ea., plus the rest of the class in a third

Measures	N	Admin.: Ind. or Small Grp.	N of E.	How often Admin.	When or Over What Period	Comments
2. Tasks or Activi- to stimulate problem solv- ing to observe in different contexts						
a. Social	10-22	Indiv./Sm. Gr.	2	~~4-5~~ 3	Once a mo., Nov. to Apr.	10 subjects, plus any others in class interested
b. Cognitive	10-22	Indiv./Sm. Gr.	2	~~4-5~~ 3	Once a mo., Nov. to Apr.	
c. Aesthetic (Arts)	10-22	Indiv./Sm. Gr.	2	~~4-5~~ 3	Once a mo., Nov. to Apr.	
III. FOR COLLECTING DATA ON PARENTS						
1. Parents interview	10	Indiv. 2 Parents (hopefully)	2	1	Jan.	Comes after informal observation openhouse and conversation after parent/teacher conference with e subjects' parent(s)
2. Parent Prob. solv. task	10	1 or 2 parents	2	1	Jan.	
3. Parent & child prob. solv. task	10	1 or 2 parents	2	1	Feb.	

Note: Measures are given to assess the 10 selected subjects responses. However, all the children in the class will be given the opportunity to participate in the project tasks, within the limitation of time and other work that the teacher has planned for the students. Since there are currently 22 children in the teacher's class, we have a range of from 10 to 22.

RI = Rigid inhibited style (Generally, lack of behavior on this scale is typical)
UD = Undisciplined Lundsteen (Measures)
AA = Acceptance anxious
C = Creative

Fig. 4

For Child

Fig. 4

PROBLEM SOLVING OBSERVATIONAL SCALE

Coder_____ Date_____

Puppet Script _____

Script No. _____ Teacher No. _____

Tentative Style match (and reasoning)	Code No.	Description	Child Code Nos., Tally, Line N							
		STRUCTURAL/OPERATIONAL VARIABLES	1	2	3	4	5	6	7	8
	1.	Total No. Indiv. Verb. Contr.								
		a. Total No. of Positive, Classifiable Responses								
		b. Unclassified Responses								
	2.	Hypotheses Generation								
		2.1 Generates partial ideas that might be worked into an hypothesis.								
		2.2 Generates one hypothesis.								
		2.3 Generates more than one when prompted.								
(typically) C		2.4 Generates multiple hypotheses with no prodding. (Fluency)								
(Note: Lack is typical of RI)										
		QUALITIES IMPORTANT DURING PROBLEM SOLVING								
	3.	Empathy (or forerunner)								
UD		3.1 Exhibits "put-down" behavior.								
C AA to a lesser degree		3.2 Offers to help puppet directly.								

Rev. 1-80 (Shortened)

C2

Style		1	2	3	4	5	6	7	8
C	3. Empathy (or forerunner) (cont.)								
	3.3 Expresses positive feeling toward puppet.								
	3.4 Expresses sympathy verbally.								
RI AA	4. Autonomy								
	4.1 Child's contribution (behavior or content) exhibits lack of autonomy and/or self-confidence.								
C	4.2 Child's contribution (behavior or content) exhibits some degree of autonomy and/or self-confidence.								
	Examples:								
	5. Causal Thinking								
I	5.1 Incomplete, implied, or irrelevant causality.								
C	5.2 Asks for reasons.								
C	5.3 Gives relevant reason.								
C	5.4 Gives more than one reason (with or without encouragement).								

C 3

style		1	2	3	4	5	6	7	8
	6. Consequential Thinking								
RI	6.1 Gives incomplete, implied, or irrelevant consequences.								
AA C	6.2 Asks for consequences.								
C	6.3 Gives a relevant consequence.								
C	6.4 Gives two or more related consequences (if A, then B, and then C).								
	7. Evaluative Thinking								
RI UD	7.1 Produces apparently "snap" judgment and gives no reason.								
RI UD	7.2 Passes judgment and gives incomplete, implied, or irrelevant reason.								
	7.3 Judgment passed supported by relevant reason(s).								
C AA--but from adult or authority anxiously	7.4 Asks for reasons or information before accepting idea or hypotheses.								
	ADDITIONAL VARIABLES								
C	8. Asks for missing data								
C	9. Gives evidence of planning (at least more than 1 step involved in child's idea)								
C	10. Child guides problem-solving process (Specify--refer to teacher behaviors)								
RI UD	11. Inaccurate listening								
	12. Rosenberg style (if possible								
	13. Other								

[Generally behavior to promote "creative" style, with exception of #06.1 "Contra and 04.5, and 07.1.]
Lundsteen

Fig. 5

(For use with Puppet Script)

CHECK LIST OF TEACHER BEHAVIORS
Regarding the Guidance of Young Children's
Problem Solving

Observer and/or Coder _____ Date data was collected _____
Time _____

Context _____

Type(s) of problem(s) _____ Teacher name _____
Teacher code no. _____

ITEM	Line nos. and comments
READINESS	
*00.1 Warm-up and openness, risk encouragement	
01.2 Clarification (of whatever the child is trying to say)	
01.3 Giving data or facts and conditions to get them started	
FACING BEHAVIORS (involves children)	
02.1 Focusing	
02.2 Refocusing	
02.3 Extending	
02.4 Lifting	
PROMOTION OF PROBLEM-SOLVING PROCESS	
03.1 Seeks facts and conditions from children (prompts recall)	
03.2 Problem clarification	
03.4 Hypothesis making, decisions encouraged	

(* Note: The "0" prefix distinguishes the coding for the teacher from that of the children.)

Lundsteen (Teacher behavior measure, cont.)

03.5 Planning behavior to implement hypothesis(es) encouraged	
03.6 Encouragement of evaluation probably premature	
03.7 Encouragement of evaluation probably appropriately paced	
REINFORCEMENT AND CONFIRMATION	
04.1 Neutral reflection	
04.2 Summarizing	
04.3 Confirmation of desirable behaviors that child has not verbalized	
04.4 Idea acceptance (either teacher or puppet agent)	
04.5 Traditional positive and vague verbal rewarding, e.g., "That's good." (May relate to control)	
TRANSFER SEEKING BEHAVIOR	
05.1 Encourages transfer seeking & use	
05.2 Finds similar elements in two problem situations and points out.	
CONTROL (behaviors unproductive of children autonomous solving)	
06.1 Teacher gives content or fishes for it, or asks question such that there is only one "right" or preferred answer.	
UNCLASSIFIABLE	
07.1 Not related to problem solving, might be social courtesy routime, other routine or ritual, or incoherent	

Lundsteen (Teacher behavior measure, cont.)

INDIVIDUALIZING BEHAVIORS 08.1 Differentiates treatment of child because of special needs.	
MODELING 09.1 Models various desirable aspects of problem solving; intends apparently as a model to the children	
QUESTION TYPE 10.1 Talley and total number of "Yes-No" as opposed to open-ended questions, while supposedly guiding the problem-solving process	

FURTHER COMMENTS (e.g., regarding the apparent patterning of the interaction of teacher moves and child moves)

Lundsteen (Measurement Fig. 6

Fig. 6

[Items 2, 5, 9, 15, 19, & 20 may yield most info, re creative style.]

PARENT INTERVIEW

(Note: We assure parents, with whom we have had many opportunities to establish rapport before this instrument is used, that they are free to "pass" on any of these items. They can simply say,"I pass.")

Child's Name_____ Date_____

Parent(s) interviewed_____

Note: Frequently insert the child's name for the words "your child."

Introductory (Open-ended--following the lead of the parents' topics)

1. Tell me something about your child. (If parents mention no concerns, ask, "What are some of your concerns?")

C 2. Tell me something about your child's problem solving.

Family Relationships

2. Who lives with you and your child? (Try to get ages--or approximate ages--for siblings and other adults living with the child.)

3. Which member of the family would you say your child is most like? Why? (If parents are hesitant or say vaguely that the child is like all of us, you can ask, "If you had to choose, which one would you say?" or, "In what way is he/she like_____?")

4. What member of the family would you say your child is least like? Why?

C 5. How do you make family decisions? (If you need examples, you might say, if different members want to watch different T.V. programs, how do you decide which channel to turn to? Who decides what clothes your child will wear to school?)

6. Think of a time when your decision was different from what your child wanted and tell me about it. What happened in the end? Are you pleased with the results?

Typical Day and Responsibilities and Discipline

7. Tell me about a typical day for your child. (If the parent describes a school day, ask, "What about on the weekends?" Conversely, if a parent describes a non-school day, ask, "What about on school days?" Pay careful attention to descriptions of various routines, such as rising, bedtime, and eating times. How does the parent describe these?)

8. Describe your child's chores and responsibilities at home. How does he/she feel about them?

C 9. How does he/she go about doing them? (Is the child planning? Rebelling? Compliant? Getting both chores and fun accomplished?)

10. Does your family have a pet? If so, who takes care of it?

11. For what behavior is your child disciplined the most?

12. How do you deal with your child? What type of discipline do you use?

13. How does your child usually respond? Does the means of disciplining him/her work?

Abilities, Needs, Goals

14. What pleases you most about your child?

15. (If not mentioned earlier) Do you have anything you have collected to share with us about your child's problem solving?

16. What do you see as your child's needs at this time?

17. In what ways would you most like to see your child change?

18 What feelings does your child express? (How?)

19. What sorts of things does your child do on his/her own? (autonomy)

20. How does he/she show understanding of your feelings or needs? (empathy)

21. What is the main service you think the school needs to offer or teach your child?

22. What do you think is one of the most important things you are offering your child? How do you feel this offering is beneficial to him/her now? How do you think it will help him/her in the future?

Note: Observe the parents' reactions to the questions and to the interview. Are they hostile? Always needing explanations and clarifications? Do they seem eager to please? Do they seem to enjoy the challenge and enjoy the opportunity to consider some things they hadn't before?

Take care to avoid defensiveness and bad feeling. Apart from maintaining a neutral, interested, and warm stance, interviewers need to convey that they are not trying to ferret out the parents' faulty methods. Sometimes positive remarks may be needed to maintain confidence and rapport. The interviewer is not there to be an inquisitor, or agent of reassurance. Questioning needs to include the guidelines of common sense, respect, and humanitarian methods included in good counseling models. It is desirable to end on a positive note.

10-19-79 Fig 7 /

BURR & MEESE TASK-- CARD for E (Puppets)

Dialogue

1. Situation: Burr: "Stay on your side of the line. You're going over into my side where I have to write."
Meese" "I've got to make my numbers. I need room to put all five numbers together."

2. Openended response: "What would you have the two puppets do and say to work this problem out?"
I'd like to tell you what another child had the..

1) 3. "No going over the line. That's the rule. You're bad. Mrs. Jones, Mrs. Jones. Meese is being bad and went over the line!" (cue card)
Reaction: Will what Burr said make the problem work out in a good way?....Why?....

2) 4. "I don't care about your old numbers being together. Quit it. Stop, or I'm going to knock your block off!" (cue card)
Reaction:...

3) 5. "Please, please, don't go over my line. Mrs. Jones will be mad if my letters don't look nice."
Reaction:... (cue card)

4) 6. "Look, I'm feeling mad. Why are you writing on my side?"
"I gotta put the 5 numbers together."
"Why don't you make your numbers a little skinnier. Then they'll all fit on your side."
Reactions:... (cue card)

7. Choose among the four above. repeat, cue cards.

8. Openended response (Child gets puppets)
Can you make up another way, a good way, What might Burr say?

copy for notebook

The "Who in the Class...?" Questionnaire

Fig. 8

Fig. 8

Summary of behavioral observations characteristic of students with different behavioral styles, according to Rosenberg

[We made this into questions and administered a section at a time to the teacher (B. Jones) during two weeks in October.]

(Copied from Diagnostic Teaching by Marshall B. Rosenberg, 1968

I. Rigid Inhibited Style

1. Cannot get a job done unless others are immediately available to help him.
2. Oblivious to what is going on in the classroom.
3. Becomes confused and disoriented easily.
4. Misinterprets simple statements.
5. Gives answers which have nothing to do with the questions being asked.
6. Afraid to assert self or show initiative.

Who in the class...?

7. Shows signs of nervousness (nail biting, crying, tics, rocking).
8. Generally unresponsive, hard to get to know.
9. Upset by change in routine.
10. Rigidly adheres to rules.

II. Undisciplined Style

1. Negativistic: "I won't."
2. Acts defiant, will not do what is asked.
3. Lacks tolerance for task he does not enjoy.
4. Tends toward temper tantrums and wild destruction.
5. Asserts independence in a negative manner.
6. Antisocial tendencies (steals, lies, destroys property, bullies, defies, resents discipline).
7. Speaks disrespectfully to teacher.
8. Prone to blame teacher or external circumstances when things don't go well.
9. Makes derogatory remarks about the subject being taught.
10. Breaks classroom rules, destructive.

III. Acceptance-Anxious Style

1. Tries too hard.
2. Wants to show off or impress others.
3. Overly sensitive to criticism or correction.
4. Worries about pleasing others.
5. Frequently seeks teacher contact and approval.
6. Excessively competitive and jealous.
7. Tries to outdo classmates by producing more quantity.
8. Outwardly nervous during tests.
9. Fearful of failure.
10. Friendly rather than distant in relationship with teacher.

IV. Creative Style

1. Tells stories or describes things in an interesting fashion.
2. Is open to new ideas.
3. Shows persistence in attacking problems.
4. Thinks creatively in new situations.
5. Able to apply what he has learned to a new situation.
6. Can constructively assert himself.
7. Shows initiative in bringing things which relate to classwork.
8. Is flexible.
9. Likely to know the material when called upon to recite in class.
10. Shows respect for teacher but can stand on own two fee

SELECTED REFERENCES

De Bono, E. Children solve problems. New York: Harper & Row, 1974.

Dworkin, N. E. & Dworkin, Y. S. Use of problem-solving strengths in dealing with disabled readers. Reading Improvement, 1977, 14, 82-85.

Getzels, J. W. Creative thinking, problem solving, and instruction. In E. R. Hilgard (Ed.), Theories of learning and instruction. Chicago: University of Chicago Press, 1964.

Jones, D. C. Rickel, A. V., & Smith, R. L. Determinants of social problem solving strategies among preschoolers. Paper presented at the meeting of the American Psychological Association, Toronto, August, 1978.

Keislar, E. R. Teaching children to solve problems: a research goal. Journal of Research and Development in Education, 1969, 3, 3-14.

Klein, G. A., & Weitzenfeld, J. Improvement of skills for solving ill-defined problems. Educational Psychologist, 1978, 13, 31-41.

Lundsteen, S. W. Listening, reading, and qualitative levels of thinking in problem solving. California Journal of Educational Research, 1967, 18, 230-237.

Lundsteen, S. W. Improving the abstract quality within creative problem solving. Journal of Special Education, 1968, 2, 177-183.

Lundsteen, S. W. A model for the teaching-learning process for assisting development of children's thinking during communication Journal of Communication, 1968, 18, 412-435.

Lundsteen, S. W. Manipulating abstract thinking as a subability to problem solving in the context of an English curriculum. American Educationla Research Journal, 1970, 7, 373-396.

Lundsteen, S. W. Levels of meaning in reading. The Reading Teacher, 1974, 28, 268-272.

Lundsteen, S. W. Questioning to develop creative problem solving. Elementary English,1974, 51,645-650.

Lundsteen, S. W. Children learn to communicate. Englewood Cliffs, N. J.: Prentice-Hall, 1976. (a)

Lundsteen, S. W. Ideas into practice. Englewood Cliffs, N. J.: Prentice-Hall, 1976. (b)

Lundsteen, S. W. Report to the Trustees of the Research Foundation of the National Council of Teachers of English on the Project "Oral Language Instruction for Creative Problem Solving," 1977. (a)

Lundsteen, S. W. Use of role play in creative problem solving: developing social skills. Paper presented at the 29th annual conference of the Southern Association on Children Under Six (SACUS) in Fort Worth, Texas, April, 1977. (b)

Lundsteen, S. W. Coding creative problem-solving behaviors in a language arts context. Paper presented at a colloquium arranged by Michigan State University, Institute for Research in Teaching, February 9, 1978. (a)

Lundsteen, S. W. Creative problem solving and discussion as a base for related reading comprehension skills and attitudes. Paper presented at the Seventh World Congress at the International Reading Association, Hamburg, Germany, August, 1978. (b)

Lundsteen, S. W. Development of creative problem solving: discussion behaviors in early childhood and in later childhood in selected Swedish and American classrooms. Faculty Research Grant Report, North Texas State University. November 27, 1978. (c)

Lundsteen, S. W., & Fructer, B. Relationship of thought processes to language responses in disadvantaged children. Final Report, Project no. 8-G-077, Grant no. O EG-7-9-530077-0111-(010). U. S. O. E., December, 1969.

Lundsteen, S. W. & Bernstein-Tarrow, N. Guiding young children's learning. New York: McGraw-Hill, (in press).

Lundsteen, S. W. & Wilson, J. A. R. Training of children's problem-solving processes and subabilities: permanency of gains. Educational Research Quarterly, 1979, 4, 41-49.

McClure, L. F., Chinsky, J. M., & Larcen, S. W. Enhancing social problem-solving performance in an elementary school setting. Journal of Educational Psychology, 1978, 70, 504-513.

Smith, C. A. Puppetry and problem-solving skills. Young Children, 1979, 34 (3), 4-11.

Spivack, G., &Shure, M. B. Social adjustment of young children. San Francisco: Jossey-Bass, 1976.